

## CLAIMS

What is claimed is:

1           1.           A method for tracking the routing of an electronic document,  
2           comprising:  
3                       embedding a unique identifier within an electronic document;  
4           and  
5                       monitoring e-mail messages transmitted from senders to  
6           recipients, for detection of e-mail messages having the electronic document  
7           embedded therewithin or attached thereto, based on the unique identifier.

1           2.           The method of claim 1 wherein the electronic document is a  
2           Microsoft Word document.

1           3.           The method of claim 1 wherein the electronic document is a  
2           Microsoft Excel spreadsheet.

1           4.           The method of claim 1 wherein the electronic documents is a  
2           Microsoft PowerPoint presentation.

1           5.           The method of claim 1 wherein the electronic document is an  
2           Adobe PDF document.

1           6.           The method of claim 1 wherein the electronic document is an  
2           HTML document.

1           7.           The method of claim 1 wherein the electronic document is an  
2           XML document.

1           8.           The method of claim 1 further comprising logging a recipient of  
2           an e-mail message having the electronic document embedded therewithin or  
3           attached thereto, in an audit record, when said monitoring detects the e-mail  
4           message.

1           9.           The method of claim 8 further comprising logging a sender of an  
2           e-mail message having the electronic document embedded therewithin or attached  
3           thereto, in an audit record, when said monitoring detects the e-mail message.

1        10.            The method of claim 9 further comprising logging a date and  
2        time of transmission of an e-mail message having the electronic document  
3        embedded therewithin or attached thereto, in an audit record, when said  
4        monitoring detects the e-mail message.

1        11.            The method of claim 10 further comprising generating a tracking  
2        report from audit records, corresponding to at least one specified document.

1        12.            The method of claim 10 further comprising generating a tracking  
2        report from audit records, corresponding to at least one specified user.

1        13.            The method of claim 10 further comprising generating a tracking  
2        report from the audit records, corresponding to a specified time period.

1        14.            The method of claim 1 further comprising logging the most  
2        recent file name of a file storing the electronic document, in an audit record, when  
3        said monitoring detects an e-mail message having the electronic document  
4        embedded therewithin or attached thereto.

1        15.            The method of claim 1 wherein said monitoring comprises  
2        authenticating the unique identifier.

1        16.            The method of claim 15 further comprising issuing a notification  
2        if said authenticating fails to authenticate the unique identifier.

1        17.            The method of claim 1 further comprising:  
2                    examining an access control policy to determine whether or not  
3        permission is granted to transmit the electronic document to a recipient of an e-  
4        mail message having the electronic document embedded therewithin or attached  
5        thereto; and  
6                    causing transmission of the e-mail message to the recipient to be  
7        blocked, if said examining determines that permission is not granted.

1        18.            The method of claim 17 further comprising issuing a notification  
2        about said causing to be blocked.

1       19.           A system for tracking the routing of an electronic document,  
2 comprising:

3                   an auto-marker for embedding a unique identifier within an  
4 electronic document; and

5                   a traffic monitor for monitoring e-mail messages transmitted  
6 from senders to recipients, and for detecting e-mail messages having the  
7 electronic document embedded therewithin or attached thereto, based on the  
8 unique identifier.

1       20.           The system of claim 19 wherein the electronic document is a  
2 Microsoft Word document.

1       21.           The system of claim 19 wherein the electronic document is a  
2 Microsoft Excel spreadsheet.

1       22.           The system of claim 19 wherein the electronic document is a  
2 Microsoft PowerPoint presentation.

1       23.           The system of claim 19 wherein the electronic document is an  
2 Adobe PDF document.

1       24.           The system of claim 19 wherein the electronic document is an  
2 HTML document.

1       25.           The system of claim 19 wherein the electronic document is an  
2 XML document.

1       26.           The system of claim 19 further comprising an auditor for logging  
2 a recipient of an e-mail message having the electronic document embedded  
3 therewithin or attached thereto, in an audit record, when said traffic monitor  
4 detects the e-mail message.

1       27.           The system of claim 26 further comprising an auditor for logging  
2 a sender of an e-mail message having the electronic document embedded  
3 therewithin or attached thereto, in an audit record, when said traffic monitor  
4 detects the e-mail message.

1 28. The system of claim 27 further comprising an auditor for logging  
2 a date and time of transmission of an e-mail message having the electronic  
3 document embedded therewithin or attached thereto, in an audit record, when said  
4 traffic monitor detects the e-mail message

1 29. The system of claim 28 further comprising a reporter for  
2 generating a tracking report from audit records, corresponding to at least one  
3 specified document.

1 30. The system of claim 28 further comprising a reporter for  
2 generating a tracking report from audit records, corresponding to at least one  
3 specified user.

1 31. The system of claim 28 further comprising a reporter for  
2 generating a tracking report from audit records, corresponding to a specified time  
3 period.

1 32. The system of claim 19 further comprising an auditor for logging  
2 the most recent file name of a file storing the electronic document, in an audit  
3 record, when said traffic monitor detects an e-mail message having the electronic  
4 document embedded therewithin or attached thereto.

1 33. The system of claim 19 further comprising a scanner for  
2 authenticating the unique identifier.

1 34. The system of claim 33 further comprising a notifier for issuing a  
2 notification if said authenticating fails to authenticate the unique identifier.

1 35. The system of claim 19 further comprising:  
2 a policy manager for examining an access control policy to  
3 determine whether or not permission is granted to transmit the electronic  
4 document to a recipient of an e-mail message having the electronic document  
5 embedded therewithin or attached thereto; and  
6 a policy enforcer for causing transmission of the e-mail message  
7 to the recipient to be blocked, if said policy manager determines that permission is  
8 not granted.

1 36. The system of claim 35 further comprising a notifier for issuing a  
2 notification about said policy enforcer causing transmission of the e-mail message  
3 to be blocked.

1 37. A computer-readable storage medium storing program code for  
2 causing a computer to perform the steps of:  
3 embedding a unique identifier within an electronic document;  
4 and  
5 monitoring e-mail messages transmitted from senders to  
6 recipients, for detection of the electronic document embedded therewithin or  
7 attached thereto, based on the unique identifier.

1 38. A method for tracking the routing of an electronic document,  
2 comprising:  
3 embedding a unique identifier within an electronic document;  
4 and  
5 monitoring transmitted network packets, for detection of network  
6 packets containing the electronic document, based on the unique identifier.

1  
2 39. The method of claim 38 further comprising logging an audit  
3 record of the transmission, when a network packet containing the electronic  
4 document is detected by said monitoring.

1 40. The method of claim 39 wherein said logging includes logging a  
2 date and time of the transmission in the audit record.

1 41. The method of claim 39 wherein said logging includes logging a  
2 destination of the transmission in the audit record.

1 42. The method of claim 38 wherein said monitoring monitors  
2 networks packets transmitted internally within an organization network.

1 43. The method of claim 38 wherein said monitoring monitors  
2 networks packets transmitted from within an organization network to outside of  
3 the organization network.

1 44. The method of claim 38 wherein said monitoring monitors  
2 networks packets transmitted to an organization network from outside of the  
3 organization network.

1 45. The method of claim 38 wherein the network packets are  
2 transmitted in response to an FTP download.

1 46. The method of claim 38 wherein the network packets are  
2 transmitted in response to an HTTP download.

1 47. The method of claim 38 wherein the network packets are  
2 transmitted in response to an Instant Messenger download.

1 48. A system for tracking the routing of an electronic document,  
2 comprising:  
3 an auto-marker for embedding a unique identifier within an  
4 electronic document; and  
5 a traffic monitor for monitoring transmitted network packets, and  
6 for detection of network packets containing the electronic document, based on the  
7 unique identifier.

1 49. The system of claim 48 further comprising an auditor for logging  
2 an audit record of the transmission when a network packet containing the  
3 electronic document is detected by said traffic monitor.

1 50. The system of claim 49 wherein said auditor logs a date and time  
2 of the transmission in the audit record.

1 51. The system of claim 49 wherein said auditor logs a destination of  
2 the transmission in the audit record.

1 52. The system of claim 48 wherein said traffic monitor monitors  
2 networks packets transmitted internally within an organization network.

1       53.           The system of claim 48 wherein said traffic monitor monitors  
2 networks packets transmitted from within an organization network to outside of  
3 the organization network.

1       54.           The system of claim 48 wherein said traffic monitor monitors  
2 networks packets transmitted to an organization network from outside of the  
3 organization network.

1       55.           The system of claim 48 wherein the network packets are  
2 transmitted in response to an FTP download.

1       56.           The system of claim 48 wherein the network packets are  
2 transmitted in response to an HTTP download.

1       57.           The system of claim 48 wherein the network packets are  
2 transmitted in response to an Instant Messenger download.

1       58.           A computer-readable storage medium storing program code for  
2 causing a computer to perform the steps of:  
3                   embedding a unique identifier within an electronic document;  
4 and  
5                   monitoring transmitted network packets, for detection of network  
6 packets containing the electronic document, based on the unique identifier.

1       59.           A method for controlling distribution of an electronic document  
2 within computer networks, comprising:  
3                   intercepting e-mail messages being transmitted from senders to  
4 recipients;  
5                   scanning the intercepted e-mail messages for detection of a  
6 specified electronic document embedded therein or attached thereto;  
7                   examining a policy to determine whether or not transmission of  
8 the document to a recipient is permitted, if said scanning detects an e-mail  
9 message having the electronic document embedded therein or attached thereto;  
10 and  
11                   causing transmission of the document to the recipient to be  
12 blocked, if said examining determines that transmission is not permitted.

1 60. The method of claim 59 wherein said scanning detects the  
2 electronic document based on a unique identifier embedded therewithin.

1 61. The method of claim 59 wherein the policy indicates recipients  
2 permitted to access the electronic document.

1 62. The method of claim 59 wherein the policy indicates recipients  
2 not permitted to access the electronic document.

1 63. The method of claim 59 wherein the policy indicates senders  
2 permitted to send the electronic document.

1 64. The method of claim 59 wherein the policy indicates senders not  
2 permitted to send the electronic document.

1 65. The method of claim 59 further comprising issuing a notification,  
2 if said examining determines that transmission is not permitted.

1 66. The method of claim 59 further comprising generating an audit  
2 record to record transmission of the electronic document via an e-mail message, if  
3 said examining determines that transmission is permitted.

1 67. A system for controlling distribution of an electronic document  
2 within computer networks, comprising:

3 a traffic monitor for intercepting e-mail messages being  
4 transmitted from senders to recipients;

5 a scanner for scanning the intercepted e-mail messages, and for  
6 detecting a specified electronic document embedded therein or attached thereto;

7 a policy manager for examining a policy to determine whether or  
8 not transmission of the document to a recipient of an e-mail message is permitted;  
9 and

10 a policy enforcer for causing transmission of the document to the  
11 recipient to be blocked.

1 68. The system of claim 67 wherein said scanner detects the  
2 electronic document based on a unique identifier embedded therewithin.



1 69. The system of claim 67 wherein the policy indicates recipients  
2 permitted to access the electronic document.

1 70. The system of claim 67 wherein the policy indicates recipients  
2 not permitted to access the electronic document.

1 71. The system of claim 67 wherein the policy indicates senders  
2 permitted to send the electronic document.

1 72. The system of claim 67 wherein the policy indicates senders not  
2 permitted to send the electronic document.

1 73. The system of claim 67 further comprising a notifier for issuing a  
2 notification, if said examining determines that transmission is not permitted.

1 74. The system of claim 67 further comprising an auditor for  
2 generating an audit record, to record transmission of the electronic document via  
3 an e-mail message, if said policy manager determines that transmission is  
4 permitted.

1 75. A computer-readable storage medium storing program code for  
2 causing a computer to perform the steps of:

3 intercepting e-mail messages being transmitted from senders to  
4 recipients;

5 scanning the intercepted e-mail messages for detection of a  
6 specified electronic document embedded therein or attached thereto;

7 examining a policy to determine whether or not transmission of  
8 the document to a recipient is permitted, if said scanning detects an e-mail  
9 message having the electronic document embedded therein or attached thereto;  
10 and

11 causing transmission of the document to the recipient to be  
12 blocked, if said examining determines that transmission is not permitted.

1 76. A method for controlling distribution of an electronic document  
2 within computer networks, comprising:

3 intercepting network packets transmitted over a computer  
4 network;

5 scanning the intercepted network packets for detection of  
6 network packets containing a specified electronic document;  
7 examining a policy to determine whether or not transmission of  
8 the specified electronic document is permitted, if said scanning detects a network  
9 packet containing the specified electronic document; and  
10 causing transmission of the document to be blocked, if said  
11 examining determines that transmission is not permitted.

1 77. The method of claim 76 wherein said scanning detects the  
2 specified electronic document based on a unique identifier embedded therewithin.

1 78. The method of claim 76 wherein the policy indicates recipients  
2 permitted to access the specified electronic document.

1 79. The method of claim 76 wherein the policy indicates recipients  
2 not permitted to access the specified electronic document.

1 80. The method of claim 76 wherein the network packets are  
2 transmitted in response to an FTP download.

1 81. The method of claim 76 wherein the network packets are  
2 transmitted in response to an HTTP download.

1 82. The method of claim 76 wherein the network packets are  
2 transmitted in response to an Instant Messenger download.

1 83. A system for controlling distribution of an electronic document  
2 within computer networks, comprising:  
3 a traffic monitor for intercepting network packets transmitted  
4 over a computer network;  
5 a scanner for scanning the intercepted network packets and for  
6 detecting network packets containing a specified electronic document;  
7 a policy manager for examining a policy to determine whether or  
8 not transmission of the specified electronic document is permitted; and  
9 a policy enforcer for causing transmission of the document to be  
10 blocked.

1 84. The system of claim 83 wherein said scanner detects the  
2 specified electronic document based on a unique identifier embedded therewithin.

1 85. The system of claim 83 wherein the policy indicates recipients  
2 permitted to access the specified electronic document.

1 86. The system of claim 83 wherein the policy indicates recipients  
2 not permitted to access the specified electronic document.

1 87. The system of claim 83 wherein the network packets are  
2 transmitted in response to an FTP download.

1 88. The system of claim 83 wherein the network packets are  
2 transmitted in response to an HTTP download.

1 89. The system of claim 83 wherein the network packets are  
2 transmitted in response to an Instant Messenger download.

1 90. A computer-readable storage medium storing program code for  
2 causing a computer to perform the steps of:

3 intercepting network packets transmitted over a computer  
4 network;

5 scanning the intercepted network packets for detection of  
6 network packets containing a specified electronic document;

7 examining a policy to determine whether or not transmission of  
8 the specified electronic document is permitted, if said scanning detects a network  
9 packet containing the specified electronic document; and

10 causing transmission of the document to be blocked, if said  
11 examining determines that transmission is not permitted.